

CLAIMS

1. A column-and-beam join structure fabricated by connecting the flanges of split tees to a steel column using bolts and by engaging and connecting the webs of the split tees to the ends of the flanges of a steel beam using bolts, characterized by making either one or both of the web and the flange of a split tee yield in advance of the column or the beam.

2. A column-and-beam join structure fabricated by connecting the flanges of split tees to a steel column using bolts and by engaging and connecting the webs of the split tees to the ends of the flanges of a steel beam using bolts, characterized in that the upper limit of the yield stress of the steel material used for either one or both of the web and the flange of a split tee is defined to be not more than twice the lower limit thereof.

3. A column-and-beam join structure fabricated by connecting the flanges of split tees to a steel column using bolts and by engaging and connecting the webs of the split tees to the ends of the flanges of a steel beam using bolts, characterized in that a split tee has a shape wherein the cross-sectional area of the web is partially reduced so as to divide the base end portion of the web, the web extending from the flange of a split tee in the axial direction of the steel beam material, from the tip portion thereof to which a flange of the H-shaped steel beam is connected using bolts.

4. A column-and-beam join structure according to claim 3, characterized in that the upper limit of the yield stress of the steel material used for the web of a split tee at the portion where the cross-sectional area is partially reduced is defined to be not more than twice the lower limit thereof.

5. A column-and-beam join structure according to claim 3 or 4, characterized by placing the web, including the portion where the cross-sectional area of the web of a split tee is partially reduced, between a flange of the

steel beam and a section steel for buckling restraint, and connecting the web to them using bolts.

5 6. A column-and-beam join structure according to any one of claims 1 to 4, characterized by providing reinforcing plates, which protrude in the direction of the web and not touching the web, to both the side edges of the flange of a split tee.

10 7. A column-and-beam join structure according to claim 3 or 4, characterized by: providing reinforcing plates, which protrude in the direction of the web and not touching the web, to both the side edges of the flange of a split tee; and placing the web, including the portion where the cross-sectional area of the web of a split tee is partially reduced, between a flange of the steel beam and a section steel for buckling restraint, and connecting the web to them using bolts.

15 8. A column-and-beam join structure fabricated by connecting the flanges of split tees to a steel column using bolts and by engaging and connecting the webs of the split tees to the ends of the flanges of a steel beam using bolts, characterized in that: the upper limit of the yield stress of the steel material used for either one or both of the web and the flange of a split tee is defined to be not more than twice the lower limit thereof; and, at a portion where both ends of the flange of the split tee are connected to the steel column using bolts, space keeping members are inserted between the flange of the split tee and the steel column and the flange of the split tee and the steel column are connected in the state of maintaining the space.

25 9. A column-and-beam join structure according to claim 8, characterized in that a split tee has a shape wherein the cross-sectional area of the flange is partially reduced.

35 10. A column-and-beam join structure fabricated by connecting the flanges of a pair of upper and lower split tees to a steel column using bolts, by engaging and

connecting both the upper and lower flanges of a steel beam between the webs of both the upper and lower split
tees using bolts, and by molding a concrete slab to
either one of both the upper and lower flanges of the
5 steel beam, characterized in that: the yield stress of
the steel material used for the web of the split tee, to
which the flange of the steel beam where the concrete
slab has been molded is connected, is defined to be
higher than the upper limit of the yield stress of the
10 steel material used for the web of the other split tee;
and the upper limit of the yield stress of the steel
material used for the web of the other split tee is
defined to be not more than twice the lower limit
thereof.

15 11. A column-and-beam join structure according to
claim 10, characterized in that the other split tee has a
shape wherein the cross-sectional area of the web is
partially reduced.

20 12. A column-and-beam join structure fabricated by
connecting the flanges of a pair of upper and lower split
tees to a steel column using bolts and by engaging and
connecting both the upper and lower flanges of a steel
beam between the webs of both the upper and lower split
tees using bolts, characterized in that: one of the upper
25 and lower split tees has a shape wherein the cross-
sectional area of the web is partially reduced and the
upper limit of the yield stress of the steel material
used for the web is defined to be not more than twice the
lower limit thereof; and the yield stress of the steel
30 material used for the web of the other of the upper and
lower split tees is defined to be higher than the upper
limit of the yield stress of the steel material used for
the web of the former split tee.

35 13. A column-and-beam join structure according to
claim 11 or 12, characterized by placing the web,
including the portion where the cross-sectional area of
the web of a split tee is partially reduced, between a

flange of the steel beam and a section steel for buckling restraint, and connecting the web to them using bolts.

14. A column-and-beam join structure fabricated by connecting the flanges of a pair of upper and lower split
5 tees to a steel column using bolts, by engaging and
 connecting both the upper and lower flanges of a steel
 beam between the webs of both the upper and lower split
 tees using bolts, and by molding a concrete slab to
10 either one of both the upper and lower flanges of the
 steel beam, characterized in that: the yield stress of
 the steel material used for the flange of the split tee,
 to which the flange of the steel beam where the concrete
 slab has been molded is connected, is defined to be
15 higher than the upper limit of the yield stress of the
 steel material used for the flange of the other split
 tee; the upper limit of the yield stress of the steel
 material used for the flange of the other split tee is
 defined to be not more than twice the lower limit
20 thereof; and, at a portion where both ends of the flange
 of the other split tee are connected to the steel column
 using bolts, space keeping members are inserted between
 the flange of the split tee and the steel column and the
 flange of the split tee and the steel column are
 connected in the state of maintaining the space.

25 15. A column-and-beam join structure according to
 claim 14, characterized in that the other split tee has a
 shape wherein the cross-sectional area of the flange is
 partially reduced.

16. A column-and-beam join structure fabricated by
30 connecting the flanges of a pair of upper and lower split
 tees to a steel column using bolts and by engaging and
 connecting both the upper and lower flanges of a steel
 beam between the webs of both the upper and lower split
 tees using bolts, characterized in that: the upper limit
35 of the yield stress of the steel material used for the
 flange of one of the upper and lower split tees is
 defined to be not more than twice the lower limit

thereof; at a portion where both ends of the flange of the split tee are connected to the steel column using bolts, space keeping members are inserted between the flange of the split tee and the steel column and the
5 flange of the split tee and the steel column are connected in the state of maintaining the space; and the yield stress of the steel material used for the flange of the other of the upper and lower split tees is defined to be higher than the upper limit of the yield stress of the
10 steel material used for the flange of the former split tee.

17. A column-and-beam join structure according to claim 16, characterized in that the former split tee has a shape wherein the cross-sectional area of the flange is
15 partially reduced.